

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) An airbreathing fuel cell comprising end plates, a unit cell having a central core, said unit being~~and~~ disposed between the two end plates, a fuel distribution manifold disposed centrally of the unit cell to supply a fuel thereto, a single tie bolt extending centrally of the fuel distribution manifold and of the unit cell to unite these elements, fixing nuts screwed onto both ends of the tie bolt to integrally clamp the unit cell between the end plates with O-rings or the like therebetween, and

a cell stack formed by stacking a plurality of those unit cells, which comprise a solid polymer electrolyte membrane, an oxygen electrode and a fuel electrode, which are provided on both sides of the solid polymer electrolyte membrane to be opposed to each other,

a porous oxygen passage plate provided adjacent and toward the oxygen electrode of each unit cell, and

separator plates provided adjacent and outside the oxygen passage plate and the fuel electrode, and

wherein the oxygen passage plate comprises a plurality of opened grooves on a surface thereof opposed to the oxygen electrode, ~~and the~~ each of the grooves having two ends that are opened to an outer periphery of the porous oxygen passage plate and not extending to and therefore being closed to the central bore,

wherein said fuel cell further comprises blowers for blasting air into the grooves formed on the oxygen passage plates, the blowers being provided on the fuel cell to face the grooves,

wherein the blowers are arranged in opposition to the both opened ends of the grooves on the oxygen passage plates of the cell stack to blast air into the grooves, whereby air can be supplied centrally of the oxygen passage plates from both ends of the grooves, and further

wherein air supplied by the blowers passes through the porous oxygen plate from the grooves to the oxygen electrode of each unit cell.

2-3. (Canceled)

4. (Currently amended) The airbreathing fuel cell according to claim 31, wherein the blowers for the cell stack are provided at least one by one on sides of the both opened ends of the grooves of the oxygen passage plates and on

respective sides in parallel to the grooves, and the blowers provided on the opposed sides are provided in opposition to each other respectively to blast an air to the oxygen passage plates.

5. (Currently amended) The airbreathing fuel cell according to ~~any one of claims 1 to 4~~claim 1 or 4, wherein an outer peripheral surface of the cell stack is rectangular in shape.

6. (Withdrawn) In an airbreathing fuel cell comprising at least one unit cell having a central bore extending therethrough, each said unit cell comprising, between a pair of separator plates, and in adjacent relationship, a fuel electrode, a solid electrolyte membrane, an oxygen electrode and a porous oxygen passage plate, the improvement wherein

the porous oxygen passage plate comprises a plurality of oxygen passage grooves in a surface of said porous oxygen passage plate which faces away from said oxygen electrode and toward a said separator plate, the grooves being open to an outer periphery of the porous oxygen passage plate and not extending to and therefore being closed to the central bore.

7. (Withdrawn) The airbreathing fuel cell according to claim 6 comprising a generally circular rib surrounding the bore which provides the closing of the grooves to the bore.

8. (Withdrawn) The airbreathing fuel cell of claim 7 further comprising a generally circular groove surrounding said generally circular rib.

9. (Withdrawn) The airbreathing fuel cell according to any one of claims 6-8, wherein the outer periphery of the unit cell is rectangular in shape.

10. (Withdrawn) The airbreathing fuel cell of claim 9, further comprising at least one blower adapted to force air into said grooves.

11. (Withdrawn) The airbreathing fuel cell according to any one of claims 6-8 further comprising at least one blower adapted to force air into said grooves.

12. (Previously presented) The airbreathing fuel cell according to claim 1, wherein said porous oxygen passage plate is made of carbon.

13. (Currently amended) The airbreathing fuel cell according to claim 1, ~~further comprising means for~~wherein said blowers are operative to forcibly feeding air into said

grooves in order to provide compressed air ~~having a high density~~ in said grooves.

14. (New) The airbreathing fuel cell according to claim 13, wherein the porous oxygen passage plate has a central portion surrounding the fuel distribution manifold, and at least several of the grooves extend through the central portion so that the blowers are operative to provide compressed air through the several grooves to the central portion.

15. (New) The airbreathing fuel cell according to claim 1, wherein the porous oxygen passage plate has a central portion surrounding the fuel distribution manifold, and at least several of the grooves extend through the central portion so that the blowers are operative to provide compressed air through the several grooves to the central portion.

16. (New) An airbreathing fuel cell comprising end plates, a unit cell having a central core, said unit being disposed between the two end plates, a fuel distribution manifold disposed centrally of the unit cell to supply a fuel thereto, a single tie bolt extending centrally of the fuel distribution manifold and of the unit cell to unite these elements, fixing nuts screwed onto both ends of the tie bolt

to integrally clamp the unit cell between the end plates with O-rings or the like therebetween, and

a cell stack formed by stacking a plurality of those unit cells, which comprise a solid polymer electrolyte membrane, an oxygen electrode and a fuel electrode, which are provided on both sides of the solid polymer electrolyte membrane to be opposed to each other,

a porous oxygen passage plate provided adjacent and toward the oxygen electrode,

separator plates provided adjacent and outside the oxygen passage plate and the fuel electrode,

wherein the oxygen passage plate comprises a plurality of opened grooves on a surface thereof opposed to the oxygen electrode, each of the grooves having two ends that are opened to an outer periphery of the porous oxygen passage plate and not extending to and therefore being closed to the central bore,

wherein said fuel cell further comprises blowers for blasting an air into the grooves formed on the oxygen passage plates, the blowers being provided on the fuel cell to face the grooves, the blowers being arranged in opposition to the both opened ends of the grooves on the oxygen passage plates of the cell stack to blast air into the grooves, whereby air

can be supplied centrally of the oxygen passage plates from both ends of the grooves,

wherein the blowers for the cell stack are provided at least one by one on sides of the both opened ends of the grooves of the oxygen passage plates and on respective sides in parallel to the grooves, and the blowers provided on the opposed sides are provided in opposition to each other respectively to blast an air to the oxygen passage plates,

wherein an outer peripheral surface of the cell stack is rectangular in shape, and

wherein said blowers are operative to forcibly feed air into said grooves in order to provide compressed air in said grooves.

17. (New) The airbreathing fuel cell according to claim 16, wherein the porous oxygen passage plate has a central portion surrounding the fuel distribution manifold, and at least several of the grooves extend through the central portion so that the blowers are operative to provide compressed air through the several grooves to the central portion.